

PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 102863-23 (ETH5081USNP)	
		Application Number 10/718,122, Conf. #9095	Filed November 20, 2003
		First Named Inventor R. Christopher Carney et al.	
		Art Unit 1725	Examiner Maria Alexandra Elve
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <p><input type="checkbox"/> applicant /inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>44,238</u></p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____</p> <p>_____ Signature</p> <p>Lisa Adams Typed or printed name</p> <p>(617) 439-2000 Telephone number</p> <p>March 14, 2008 Date</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p> <p><input type="checkbox"/> *Total of <u>1</u> forms are submitted.</p>			

Pre-Appeal Brief Request for Review	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: R. Christopher Carney et al.

Application No.: 10/718,122

Filed: November 20, 2003

Entitled: METHOD AND APPARATUS FOR LASER
DRILLING WORKPIECES

Docket No.: 102863-23 (ETH5081USNP)

Group Art Unit: 1725

Examiner: Maria Alexandra Elve

Certificate of Transmission (37 C.F.R. 1.8(a))

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March 14, 2008

By: 

Date of Signature and Mail Deposit

Lisa Adams, Reg. No: 44,238
Attorney for Applicant(s)

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

COMMENTS FOR PRE-APPEAL BRIEF REVIEW

Dear Sir:

These comments are being filed concurrently with a Notice of Appeal and a Pre-Appeal Brief Request for Review.

A clean version of the *Pending Claims* is attached hereto.

Claims 1-8 stand rejected pursuant to 35 U.S.C. § 103(a) as being obvious over JP 01-215290 ("Kimura") in view of DE 3938779 ("Bosch"), U.S. Patent No. 4,581,939 ("Takahashi"), and U.S. Patent No. 6,252,195 ("Mosavi"). The Examiner argues that Kimura discloses the inventions of claims 1 and 6, except for drilling a vibrating workpiece and providing a spherical focusing lens. The Examiner relies on Bosch and Takahashi to teach these limitations, arguing that it would have been obvious to modify the device of Kimura in view of Bosch and Takahashi. Applicants respectfully disagree.

A. Kimura Lacks a Vibrating Frame and No Motivation Exists to Modify It's Frame to Vibrate

Claims 1 and 6 require a workpiece engaged by a first vibrating frame. Kimura is deficient with

respect to each of these claims because it altogether lacks a *vibrating* frame.¹ Instead, the sample (3) of Kimura is fixed to a stage (6) that only moves according to precise instructions from a stage controller (7). *See Kimura* at 3-4; *Kimura Figs.* 1, 6. The stage controller (7) causes the stage (6) to move back and forth under a stationary laser beam (2) according to a desired cut pattern. *Id.* An outline detector (17) is provided to determine when the edge of the sample is reached and to instruct the stage controller (7) to reposition the stage (6) and sample (3). *Kimura* at 3-4. Thus, absent specific instruction from the stage controller, the Kimura stage does not move at all, much less vibrate as required by claims 1 and 6. The dictionary defines “vibration” as “a periodic motion of the particles of an elastic body or medium in alternately opposite directions from the position of equilibrium when that equilibrium has been disturbed...” *Webster’s Third New International Dictionary* (1993). The movement of the stage in Kimura, which only travels according to discrete and specific directions from a stage controller, certainly does not constitute “vibration.” Accordingly, Kimura fails to teach or even suggest an express limitation of the claimed invention.

In the Advisory Action dated January 18, 2008, the Examiner states that “close examination reveals that the vibrating stage [of Kimura] is the same as applicant’s vibrating frame.” Applicants contend that it was impossible for the Examiner to make a “close examination” of Kimura at the time the Advisory Action was issued because the Examiner had not yet obtained an English-language translation of the full reference and was instead relying only on a translated abstract. Reliance only on an abstract of a foreign language document, and not the underlying document itself, is generally inappropriate. *See MPEP* § 706.02(II). Regardless, the only language in Kimura that the Examiner could closely examine at the time of the Advisory Action was the Abstract, and the Abstract merely states that “the stage holding the sample is allowed to move.” Such language clearly cannot be interpreted to mean that the stage “vibrates,” which requires something more than simple movement as explained above.

Applicants also note that no skilled artisan would modify Kimura to include a vibrating frame since doing so would render Kimura’s device inoperable. In order to cut a pattern into a sample, without destroying the delicate living cell, Kimura relies on controlling the speed and movement of the frame with great precision. As explained above, movement is precisely controlled to cut around the edge of a sample. This is done to maintain viability of the living cells in the sample. Any vibration of the frame and/or workpiece would be *fatal* to the Kimura method, as this uncontrolled movement would risk damage to the cell. This is specifically contrary to the teachings of Kimura, as explained in the Problems to Be

¹ In the Advisory Action dated 1/18/2008, the Examiner states that “Applicant argues that Kimura teaches a vibrating stage which is not the same as applicant’s vibrating frame.” This assertion is inaccurate in that Applicants have never characterized the stage of Kimura as “vibrating.” Rather, Applicants have consistently argued that the stage of Kimura does not vibrate at all. *See, e.g., Applicants’ Response dated 1/2/2008* at page 3.

Solved By the Invention section. In particular, Kimura explains that prior art lasers kill living samples because the lasers only move in the X and Y direction, thus necessarily cutting through the spherical cells. To solve this problem, Kimura designed a system that detects the shape of the living cells and allows the laser to move in the Z direction to avoid cutting through the cells and instead to cut around the cells. Again, any vibration would prevent such precise controlled movement and would destroy the cells. Such a modification is therefore specifically contrary to the teachings of Kimura and would never be made by a person having ordinary skill in the art. This reason alone is sufficient to render claims 1 and 6, as well as claims 2-5 and 7-8 which depend therefrom, patentable over Kimura.

B. Kimura Lacks a Lens Mounted to the Same Frame as the Sample and No Motivation Exists to Add Such a Lens to Kimura

Kimura further fails to teach or suggest a lens mounted to the same frame as the sample, as further required by claims 1 and 6. Instead, the exact opposite is true – Kimura specifically requires that the sample and the lens be mounted to separate frames. This independent movement is illustrated in Figures 1 and 6 of Kimura, which show a sample (3) mounted to a stage (6) and an objective lens (1) and laser beam (2) held stationary above the stage. As explained in Kimura, movement of the stage (6) is controlled by a stage controller (7) and movement of the lens is controlled by a lens-moving controller (15) and lens-moving device (14). Thus, because the lens and sample of Kimura are mounted separately, Kimura lacks a lens mounted to the same frame as the sample, as required by claims 1 and 6.

Applicants further note that no person skilled in the art would modify the Kimura lens to be mounted to the same frame as the sample since doing so would render the device inoperable. It is a fundamental requirement of Kimura that the lens and sample not be mounted to the same frame, since such a configuration would prevent the sample from moving independently of the lens. As explained above, the whole purpose of Kimura is to move the sample relative to the lens and laser to cut the outline of a cell. If the sample were mounted to the same frame as the lens, as required by claims 1 and 6, the sample could only be cut at one distinct point. There is thus no motivation to modify Kimura to reach the claimed invention.

C. There is no Motivation to Modify Kimura According to Bosch to Drill Holes

The Examiner concedes that Kimura fails to teach drilling holes and relies on Bosch to remedy this deficiency. At the outset, there is no way to modify Kimura to drill a hole while still maintaining its intended capability of cutting around a delicate, three-dimensional cell. As explained at page 2 of Kimura, the Kimura device is designed to remove material surrounding a generally spherical cell, such as a fertilized ovum, without damaging or killing the sample. As the stage (6) of Kimura is moved beneath a stationary laser (2), the laser (2) etches around three-dimensional cells suspended in a sample (3). *See Kimura at 2-3; Figures 2, 6.* A reference directed toward drilling holes (like Bosch) does not provide any advantage when trying to

carve living cells from a sample as in Kimura. In fact, one seeking to modify Kimura would want to ensure that the laser *doesn't* drill holes in the cell, since the entire purpose of Kimura is to avoid damage to the fragile living sample. Accordingly, there is no motivation in Bosch or in any other reference to modify Kimura to drill holes.

D. There is no Motivation to Modify Kimura with the Spherical Lens of Takahashi

The Examiner also concedes that Kimura fails to teach or suggest yet another limitation of claims 1 and 6 – a spherical lens. The Examiner relies on Takahashi to teach a spherical lens, but again, no motivation is provided to combine this reference with Kimura.

It is well settled that “the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). As explained at page 3 in Applicants’ Response dated January 2, 2008, Takahashi does not provide any teachings relating to the spherical lens that would motivate a skilled artisan to use such a lens with Kimura. Instead, Takahashi merely states that a spherical lens is used, without providing any advantages to doing so.

The Examiner further argues that the addition of a spherical lens to Kimura can be accomplished merely by rearranging parts. *Final Office Action* at 3. This argument fails, however, since the Examiner has already admitted that Kimura lacks several components of the claimed invention. In other words, there is no way for the parts of Kimura to be rearranged to reach the claimed invention if several parts are missing. Moreover, even in the case of a rearrangement some motivation is required:

“The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The *prior art must provide a motivation or reason* for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device.” *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

MPEP § 2144.04(VI)(C) (emphasis added). Accordingly, since the Examiner has failed to identify even a shred of motivation to alter Kimura to include the spherical lens of Takahashi, the rejection based on these references is inappropriate.

E. Kimura is Non-Analogous Art

Lastly, it is inappropriate to rely on Kimura at all, as it is non-analogous art. To be analogous, a reference must either be within the field of the inventor’s endeavor or be reasonably pertinent to the particular problem with which the inventor was involved. *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986).

First, the Kimura method for shaping a three-dimensional living cell is clearly outside the field of drilling holes in a vibrating workpiece. The fact that Kimura and the present invention use lasers for cutting,

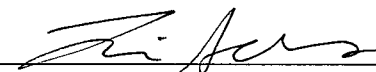
as suggested by the Examiner, does not render Kimura analogous. The Examiner's reliance on such a broad interpretation of the field of Applicant's endeavor is improper. Second, Kimura is not reasonably pertinent to the particular problem with which Applicants were involved. The problem being solved is not simply a biological problem, as suggested by the Examiner, rather the purpose of the claimed method is drilling precise holes in a vibrating workpiece without subjecting the drilling laser to vibration. *Specification* at 2. The purpose of Kimura on the other hand is to cut around three-dimensional living cells without destroying them. *Kimura* at 2. This is a vastly different problem than drilling precise holes in a workpiece. A reference is reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). Because Kimura is directed to a entirely different purpose than the claimed invention, no inventor would be motivated to consider Kimura because it is simply not relevant to solving the purpose of the claimed invention. *See id.* Accordingly, Kimura is non-analogous art and reliance thereon is inappropriate.

In sum, Kimura is deficient with respect to at least four limitations of claims 1 and 6, none of which is adequately addressed by the secondary references cited by the Examiner. Moreover, Kimura is non-analogous art, and as such cannot be relied upon to reject the claimed invention as obvious. Accordingly, claims 1 and 6 are non-obvious and represent allowable subject matter. Claims 2-5 and 7-8 are allowable at least because they depend from allowable base claims.

In view of the above remarks, Applicant submits that all claims are in condition for allowance, and allowance thereof is respectfully requested.

Respectfully submitted,

Date: March 14, 2008



Lisa Adams, Reg. No. 44,238
Attorney for Applicant(s)

Nutter McClennen & Fish LLP
World Trade Center West
155 Seaport Boulevard
Boston, MA 02110
Tel: (617) 439-2550
Fax: (617) 310-9550

PENDING CLAIMS

1. (Previously Presented) A method of laser drilling a vibrating workpiece, comprising:
providing a workpiece engaged by a first vibrating frame of a vibrating machine, wherein the workpiece is vibrating substantially in unison with the first vibrating frame;
providing a laser apparatus mounted to a second frame, wherein the second frame is substantially isolated from the vibrating frame and does not vibrate;
providing a spherical focusing lens that is mounted to the first vibrating frame, wherein the spherical focusing lens is vibrating substantially in unison with the first vibrating frame;
aligning the laser apparatus and the spherical focusing lens such that a laser beam emitted by the laser apparatus is directed through the vibrating spherical focusing lens to a target location on the vibrating workpiece; and
causing the laser apparatus to emit a beam through the spherical focusing lens, wherein the beam is stationary with respect to the vibrating spherical focusing lens, and wherein the beam strikes the vibrating workpiece at the target location.
2. (Original) The method of claim 1, wherein the laser comprises an Nd-Yag laser.
3. (Original) The method of claim 1, wherein the workpiece comprises a surgical needle.
4. (Original) The method of claim 1, wherein the laser beam is pulsed.
5. (Previously Presented) The method of claim 1, wherein the workpiece is mounted to a fixture which is mounted to the first vibrating frame, wherein the fixture vibrates substantially in unison with the first vibrating frame.
6. (Previously Presented) An apparatus for laser drilling a vibrating workpiece, comprising:
a workpiece mounted to a first vibrating frame;
a laser apparatus mounted to a second frame, wherein the second frame is substantially isolated from the first vibrating frame and is substantially non-vibrating; and,
a spherical focusing lens mounted to the first vibrating frame for directing a laser beam emitted by the laser apparatus to a target site on the workpiece, such that the spherical focusing lens vibrates substantially in unison with the first vibrating frame, while the laser beam is substantially stationary with respect to the vibrating spherical focusing lens.
7. (Original) The apparatus of claim 6, wherein the laser comprises an Nd-Yag laser.
8. (Original) The apparatus of claim 6 wherein the workpiece comprises a surgical needle.